federal register

Thursday
April 17, 1980

Part VI

Environmental Protection Agency

Standards of Performance for New Stationary Sources: Secondary Lead Smelters; Review of Standards

ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 60

[FRL 1415-3]

Standards of Performance for New Stationary Sources: Secondary Lead Smelters; Review of Standards

AGENCY: Environmental Protection Agency.

ACTION: Review of standards.

SUMMARY: EPA has reviewed the standards of performance for secondary lead smelters (40 CFR 60.120). The review is required under the Clean Air Act, as amended August 1977. The purpose of this notice is to announce EPA's plans to undertake a program which will be designed, depending upon its findings, to develop fugitive particulate matter emission standards and SO_2 standards applicable to secondary lead smelters.

DATE: Comments must be received by June 16, 1980.

ADDRESS: Comments should be submitted to the Central Docket Section (A-130), U.S. Environmental Protection Agency, 401 M Street, S.W., Washington, D.C. 20460, Attention: Docket No. A-79-20.

FOR FURTHER INFORMATION CONTACT:

Mr. Robert Ajax, telephone: (919) 541-5271. The document "A Review of Standards of Performance for New Stationary Sources—Secondary Lead Smelters," EPA-450/3-79-015, is available upon request from Mr. Robert Ajax (MD-13), Emission Standards and Engineering Division, Environmental Protection Agency, Research Triangle Park, North Carolina 27711.

SUPPLEMENTARY INFORMATION:

Introduction

On June 11, 1973, the Environmental Protection Agency proposed a standard under Section 111 of the Clean Air Act to control particulate matter emissions from secondary lead smelters. The standard, promulgated on March 8, 1974, and amended on April 17 and October 6, 1975, applies to any secondary lead smelter under construction, modification, or reconstruction on or after June 11, 1973. The specific lead smelter facilities subject to the standard are reverberatory furnaces (stationary, rotating, rocking, or tilting), blast (cupola) furnaces and pot furnaces of more than 550-lb charging capacity. Furnaces for smelting lead alloy for newspaper linotype are subject to the standards if they meet the same size requirement as applied to pot furnaces.

The Clean Air Act Amendments of 1977 require that the Administrator of EPA review and, if appropriate, revise established standards of performance for new stationary sources at least every 4 years (Section 111(b)(1)(B)). Following the adoption of the amendments, EPA contracted with the MITRE Corporation to undertake a survey of available literature and information pertaining to secondary lead processes, emissions and control technologies, including results from tests of new lead smelters to assess the need for revision of the standard. The survey involved visits to each EPA Regional Office as well as review of recent literature and study results, but did not include visits to plants. Based principally on this review, EPA plans to begin a program to develop standards which would limit the emission of fugitive particulate matter, and sulfur dioxide from secondary lead smelters. This program will include an extensive technical investigation and assessment. Final decisions pertaining to whether standards should be adopted and the level of any such standards will not be made until after these investigations and assessments are completed. The time required to develop these standards for proposal will be approximately 2 years.

Industry Review

Secondary lead produced by smelting of scrap accounts for roughly half of all lead produced in the United States. After a record output of over 626,000 tons in 1976, secondary lead output declined in 1977 to between 588,000 and 600,000 tons. However, production of lead from both primary and secondary sources is expected to grow at an annual rate of slightly under 2 percent or by about 50 percent between 1976 and 2000. This compares with an average annual increase in demand for lead from 1967 to 1976 of about 3 percent. It is expected that the relative share of the market held by secondary lead production will remain near the 50 percent level.

It is estimated, based on an assumed secondary smelter capacity of 50 ton/day, that on the average, two new plants and one to two modified smelters will become subject to NSPS each year. This estimate is consistent with the latest Bureau of Mines data (1978) which show six plants completed or scheduled for completion in the 1977-1979 period (including major expansions of existing plants). Through 1978, six plants have been identified which have come on line subject to the standard.

The secondary lead market is dominated by a few companies. In addition, the trend is toward fewer and larger plants as evidenced by the decrease in the total number of smelters from 160 in 1967 to about 115 in 1975. Overall, the average annual output per smelter is in the range of 5,700 to 6,000 tons. Geographically, the industry is somewhat dispersed with secondary lead smelters located in all of the ten EPA regions.

Emissions and Control Technology

Process Particulate Emissions. The present standard of performance limits the emission of particulate matter from blast or reverberatory furnaces to 50 mg/dscm (0.022 gr/dscf) and to less than 20 percent opacity. In addition, the standard limits the opacity of emissions from pot furnaces to less than 10 percent opacity. For a typical reverberatory or blast furnace with uncontolled emissions of 147 lbs/ton and 193 lbs/ton of feed material respectively, the standard limits emissions to one and 2 lbs/ton. This compares to an estimated controlled emission level of 21 and 28 lbs/ton in the absence of the new source standard. In this review, results from four compliance tests were obtained. The results from reverberatory and blast furnace tests were 0.015 gr/dscf and 0.0135 gr/dscf respectively.

Lead Emissions. The present standard of performance does not specifically limit the atmospheric emission of lead from secondary lead furnaces. However, lead is controlled by the same devices employed to limit particulate matter emissions. Reported lead emission data, although variable, indicate uncontrolled lead emissions to be approximately 23 percent of the total particulate matter emissions. Controlled lead emissions measured in six tests conducted on emissions from seven furnaces were found to range in concentration from 0.009 to 0.0846 lb/ton with five of the six below 0.04 lb/ton. In another survey of 11 controlled secondary lead smelters in the Chicago area, an emission rate of 0.002 lbs lead/ton of product was reported. Results of a further test at a baghouse controlled reverberatory furnace indicated particulate matter and lead concentrations of 0.016 and 0.001 gr/dscf, respectively. The variability in these data and the lack of other simultaneous inlet and outlet data do not allow a precise statement of relative control effectiveness. However, the data do consistently indicate that the ratio of lead to particulate emissions from controlled furnaces is not higher than the ratio (i.e., 23 percent) for uncontrolled furnaces.

Fugitive Emissions. In addition to the material discharged through the stack of a secondary lead furnace, particulate

and gaseous matter may be emitted into the atmosphere in and around a plant from other operations. Some of these fugitive emissions are process-related, e.g., when materials escape from the hoods provided around potential outlet points of a furnace. Others result from auxiliary operations. No fugitive emission points, whether related to processing or to auxiliary operations at the site, are currently subject to specific control under NSPS for secondary lead smelters.

In some situations, fugitive emissions may be high. For example, the high concentration of lead, particularly in the soil, close to two Toronto smelters was ascribed by Canadian investigators to "low-level, dust-producing operations rather than * * * stack fumes." In apparently extreme situations, fugitive particulate emissions from processing may amount to over 15 lb/ton of charge from reverberatory furnaces and as much as 12 lb/ton from blast furnaces. These rates, although much lower than uncontrolled emission rates from furnace stacks, are substantially higher than rates from stacks meeting the NSPS.

Several techniques have been applied to reduce fugitive emission rates and recently significant improvements in the technology for controlling fugitive emissions from both process- and site-related operations in secondary smelting of lead have been reported in Denmark. The methodology uses improved furnaces that minimize the escape of dusts during smelting and also enable baghouse contents to be recharged as collected, thereby eliminating the accumulation of these fines in storage piles where they are subject to transport into the environment. Specialized waste management and housekeeping procedures are used in conjuction with the furnaces to reduce the opportunity for emissions from storage of raw materials and other sources on the site. The technology has been investigated by the EPA Industrial Environmental Research Laboratory in Cincinnati in connection with the National Institute of Occupational Safety and Health (NIOSH). Testing of the furnaces has been conducted under the joint auspices of EPA and NIOSH at a plant in Denmark. Initial reports indicate the technology as having high potential for application in reducing fugitive emissions from secondary lead smelters in the United States.

Sulfur Dioxide. The rate of uncontrolled emissions of SO_2 from secondary lead smelters is approximately 76 lb/ton of lead produced for blast furnaces and of 114 lb/ton for reverberatory furnaces. A reverberatory furnace of 50 tons/day (2.08 tons/hr) would emit about 2.8 tons of SO_2 each day and a blast furnace of the same capacity about 1.9 tons. Assuming an equal mix between blast and reverberatory furnace production, the total secondary lead production in 1975 of 658,500 tons would have resulted in about 31,000 tons of SO_2. Currently, no NSPS for SO_2 from secondary lead smelters are in effect.

SO_2 control is not normally practiced at lead smelters. However, both regenerative SO_2 control systems which are used in the primary smelting industry to control SO_2 and produce sulfuric acid, and non-regenerative scrubbing systems used to control SO_2 emissions from steam generators are potentially applicable to SO_2 control at secondary lead smelters. A more detailed engineering assessment is needed to further assess the applicability of these technologies to determine the best demonstrated control technology and an appropriate level for any standard. In addition, the cost of SO_2 control and the associated economic impact require further study as these may be the primary consideration in analyzing the feasibility of control.

Conclusions

EPA believes that the information obtained in this review of the secondary lead industry does not provide a basis for determining conclusively that the standard should be revised nor at what level any revised standard should be set. However, the available data show that a project should be undertaken to further assess the need for and, as appropriate to develop standards limiting fugitive particulate matter (including lead) and sulfur dioxide emissions from secondary lead plants.

The available particulate matter compliance test data obtained in this review are consistent with the test data used by EPA in establishing the present standard and, although very limited, these data, added to the data used in developing the present standard support the validity of the present standard. Similarly, the data available on lead emissions from furnace stacks suggest that the particulate matter standard is adequate to require installation of control systems which represent best available control technology for both particulate matter and lead. Therefore, a separate standard for lead is considered unnecessary. EPA will welcome any additional data pertaining to this decision on the particulate matter standard and on lead emissions. In addition, EPA in the planned standards development discussed below, will seek to obtain additional recent compliance test data and will assess this in terms of the current standard.

The project to assess the need for and, as appropriate, to develop fugitive particulate matter and sulfur dioxide standards will be undertaken by EPA's Emission Standards and Engineering Division. This project is expected to begin early in 1980 and will follow a standardized approach which involves detailed engineering and economic assessments preceeding proposal of any standards. Standards resulting from this project would be proposed for comment in early 1982.

Dated: April 9, 1980.

Douglas M. Costle,

Administrator.

[FR Doc. 80-11666 Filed 4-16-80; 8:45 am]

BILLING CODE 6560-01-M